

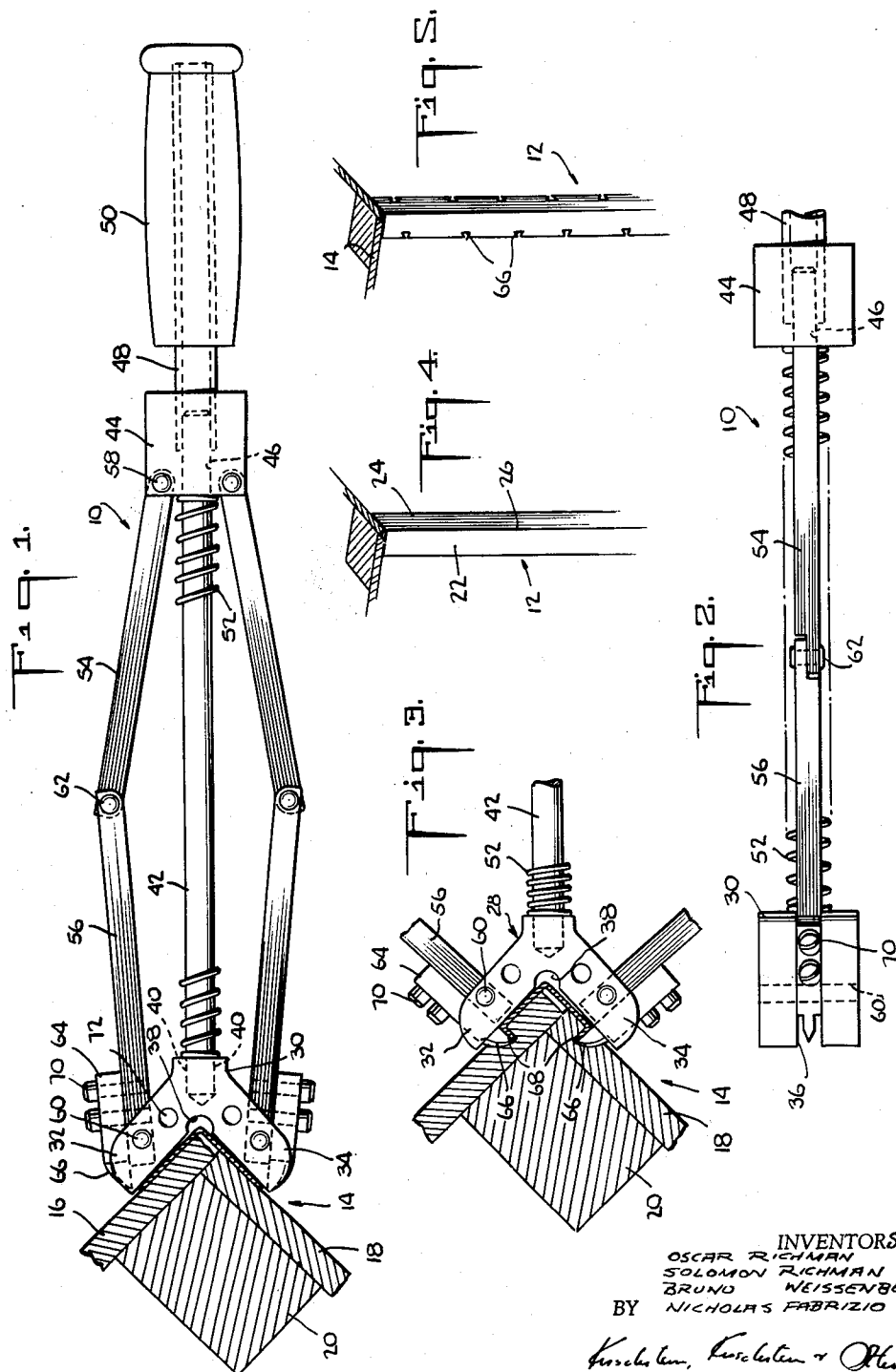
July 12, 1960

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2,944,262

CORNER CRIMPER

Filed April 14, 1958



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2,944,262

CORNER CRIMPER

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Filed Apr. 14, 1958, Ser. No. 728,152

1 Claim. (Cl. 1—260)

This invention relates to a building construction tool. More particularly, the invention pertains to a building construction tool which is specially designed to speed up and lower the cost of installing external protective covers.

It is customary to strengthen an external corner on the inside of a building, i.e., a corner which juts into a room, hallway or the like, by mounting thereon an angle iron, usually of light sheet metal, which runs along the external corner and is itself known in the trade as a "corner." Particularly in the case of dry wall construction, that is to say, where the walls are made of sheet rock panels or the like, the use of protective corners is specially desirable because dry wall panels are notoriously friable.

In dry wall construction or any other building construction where a wooden corner stud is located near the surface of the protective corner nails which are driven through the legs of the angle iron and penetrate the corner stud. An ordinary house has a large number of external corners which need protection, it being quite usual to find from 30 to 60 and even more such corners in a conventional house.

It is an object of the present invention to provide a tool for installing protective corners whereby the installation thereof is greatly accelerated without, however, in any way detracting from the firmness of the connection between the corner and the underlying stud.

It is another object of our invention to provide a tool of the character described which is rugged and foolproof, can be used without special training by unskilled labor and is nevertheless speedy and positive in action.

It is another object of our invention to provide a tool of the character described which constitutes relatively few and simple parts and is inexpensive to make.

It is another object of our invention to provide a tool of the character described which can be operated single-handedly so that the worker is free to utilize his other hand to hold the metal corner against the building corner being covered.

It is another object of our invention to provide a tool of the character described which is safe to use and will connect the metal protective corner and the underlying stud in a single stroke of the operator's hand.

Other objects of our invention in part will be obvious and in part will be pointed out hereinafter.

Our invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the tool hereinafter described and of which the scope of application will be indicated in the appended claims.

In the accompanying drawings in which is shown one of the various possible embodiments of our invention,

Fig. 1 is a top view of our tool in retracted position, the same being shown resting against a sheet metal corner;

Fig. 2 is a side view of the tool in the position shown in Fig. 1;

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Fig. 3 is a view similar to Fig. 1, but illustrating only the head of the tool and showing the same in actuated position;

Fig. 4 is a perspective view of a sheet metal corner as it appears when lying against but before attachment to a dry wall corner; and

Fig. 5 is a view similar to Fig. 4, but showing the sheet metal corner after attachment with the use of a tool embodying the present invention.

Referring now in detail to the drawings, the reference numeral 10 denotes a tool constructed in accordance with our invention and adapted to be used to attach a sheet metal corner 12 to an external dry wall corner 14.

The dry wall corner constitutes a pair of vertical dry wall panels 16, 18 which are disposed at right angles to one another with one set of end edges in overlapping abutment as shown in Fig. 1. Said corner is supported by a hidden wooden stud 20 to which the panels are nailed.

The sheet metal corner 12 constitutes a single strip of light gauge metal, e.g., sheet iron, which is bent along its longitudinal center line, as in a brake or with rolls, to provide a right angle cross section whereby the metal corner includes a pair of legs 22, 24 at right angles to one another and joined by a nose 26. It sometimes is desirable, as is well known, for the nose to protrude slightly. However, this does not affect the present invention.

Heretofore, it has been customary to attach a sheet metal corner to an external dry wall corner by placing the sheet metal corner over the dry wall corner and driving nails through the legs of the metal corner into the hidden stud. This sometimes deformed the wall and always consumed considerable time, usually from four to eight hours for an average one family house.

This laborious and time consuming method has been rendered obsolete by the corner crimper 10 of our invention. Said corner crimper includes a hold-down head 28 of Y-shaped, plan configuration, that is to say, a head which includes a body 30 and a pair of arms 32, 34 extending therefrom at right angles to one another. The inner faces of the arms are adapted to be seated against the outer surfaces of the legs 22, 24 of the sheet metal corner 12 as shown in Fig. 1. Each arm 32, 34 is deeply laterally slotted from its tip toward the body to form a through transverse groove 36 (see Fig. 2) the purpose of which soon will be apparent. In order to accommodate the nose of the sheet metal corner, if there should be one, the body is cut away adjacent the inner ends of the arms, as indicated at 38.

The back end of the body 30 is formed with a rearwardly extending socket 40 in which the forward end of a straight rod 42 is securely received as by threading, welding or force fitting, so that the rod constitutes a solid rearward extension of the head. The socket and rod are so oriented that the longitudinal axis of the rod bisects the dihedral angle between the inner faces of the arms 32, 34. As later will be appreciated, this insures even distribution of pressure between the arms 32, 34 of the head and the legs 22, 24 of the sheet metal corner.

A shoe 44 is provided having a straight through aperture 46 in which the rod 42 is slidable, so that said shoe is guided for translatory movement along the rod. Moreover, to facilitate such movement of the shoe, and particularly in a direction toward the head, a sleeve 48 is firmly secured on the shoe concentric with the through aperture 46, the bore of the sleeve constituting an extension of said aperture so as to lengthen, in effect, the sliding and guiding contact between the shoe and the rod. Said sleeve mounts a grip 50 conveniently fashioned from rubber or the like to aid in manipulating the tool.

A helical spring 52 encircles the rod 42, being held under light compression between the back of the head and the front end of the shoe in the outermost, i.e., re-

tracted, position of the latter. Thus, said spring biases the shoe away from the head, the biasing being rather light and easily overcome by an operator.

A pair of link connections extends between the shoe and the head. These connections are identical and therefore only one will be described. More particularly, each link connection constitutes a rear link 54 and a front link 56. The back end of the rear link is pivotally secured as by a pin 58 to the front end of the shoe 44. The forward end of the front link 56 is pivotally secured as by a pin 60 to one arm, e.g., the arm 32, of the head 28. The back end of the front link 56 and the forward end of the rear link 54 are pivotally interconnected as by a pin 62. All of the pins 58, 60, 62 are parallel to one another and perpendicular to the longitudinal axis of the rod. The second link connection preferably is located on the diametrically opposite side of the rod 42 with all of its pins parallel to the pins 58, 60, 62. From the foregoing, it will be appreciated that when the shoe 44 is slid forwardly on the rod 42 toward the head 28 the link connections will jackknife so that the forward tips of the front links 56 will swing into the space defined by the arms of the head. Release of forward pressure on the shoe 44 enables the spring 52 to restore said shoe to its outermost position shown in Fig. 1.

The forward end of each of the two front links 56 has secured thereto a block 64, such securement preferably being detachable so that the block can be replaced in case it becomes worn or in case a different size of block is required. The tip 66 of said block extends beyond said link and to front pin 60 and said jutting tip constitutes a cutter which retracts into and swings out of the slot 36. Desirably, the tip is V-shaped and sharpened for shearing action, that is to say, the corners between its side edges and its inner face are angled rather than rounded. It will be obvious that when the link connections are jackknifed, said jutting tips will swing so as to protrude from the inner faces of the yoke arms. The angle at which the jutting tips are disposed when the shoe has been moved forwardly as far as it can be, is illustrated in Fig. 3 where it will be seen that, desirably, the angle between the inner face of the cutting tip and the arms of the yoke is about 90°. It is understood however that this particular angle is not critical.

After a sheet metal corner has been placed against a dry wall corner so as to snugly engage the same, the tool, in the fully extended position shown in Fig. 1, is brought to bear on the sheet metal corner. The inner faces of the legs of the head at this time rest flatly against the two legs 22, 24 of the sheet metal corner. The cutting tips 66 are clear of the sheet metal corner since they are retracted within the grooves 36. The operator holds the tool by its grip in the aforesaid position by simply pressing it lightly against the sheet metal corner. A slight pressure exerted toward the corner compresses the spring 52 and this in turn presses the head against the sheet metal corner so that the holding force applied by the operator is transmitted through the tool to the sheet metal corner.

The operator now suddenly drives the handle 50 forwardly. As he does so the spring 52 will be compressed and exert a stronger force on the head 28 and thereby even more firmly hold the sheet metal corner in place. As the shoe moves forwardly, the link connections will angle toward jackknifed positions, swinging the cutting tips 66 forwardly and inwardly. These tips will penetrate and shear tines 68 from the sheet metal legs. The tines, due to the shape of the tips 66, are triangular in outline and the sides of the tines are cut free of the sheet metal corner. However, the bases of the tines remain integral with the corner; the bending of said tines taking place about their bases. Said tines, under the pressure exerted by the link connections, will dig into the comparatively soft material

of the underlying dry wall panels, and since they are moving toward one another, will clinch the sheet metal corner to the panels.

The operation described takes place far more rapidly than the time required to describe it. The worker simply places the head of the tool against the sheet metal corner and swiftly moves the handle inwardly, taking but a portion of a second to complete the operation. He then moves the tool to another position on the sheet metal corner and repeats the operation and in very short order the entire corner has been secured in place. The attachment is very firm and the sheet metal corner remains in snug engagement with the dry wall corner, inasmuch as the head presses the same against the dry wall corner during each clinching stroke.

If after a period of use, the cutting tips 66 become worn, they easily can be replaced by removing the screws 70 and employing the same screws to hold a fresh block 64 in place. Moreover, if desired, blocks having different cutting lengths or configurations can be utilized in place of the blocks with the particular tips shown.

The sheet metal corners 12 here illustrated have comparatively wide legs. Sheet metal corners having somewhat narrower legs may be employed and to use the tool for installing such narrower corners, the arms 32, 34 are provided with sets of registered openings 72 nearer the head to receive the pins 60.

It thus will be seen that there I have provided a corner crimper which achieves the various objects of my invention and is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of my above invention and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein described or shown is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

A building tool for securing a sheet metal corner to a building corner jutting into a space in a building, said tool comprising a head including a yoke constituting a body having a pair of equal diverging arms extending away from the same with the inner faces of the arms forming an internal angle of approximately 90°, each arm being bifurcated, a rod secured to the body of the yoke and extending away from the arms, a spiral spring encircling the rod, a shoe having a central through opening slidable on the rod, said spring being held under compression between the shoe and the yoke, two pairs of pivotal links each including a front link and a rear link, said pairs of links being located on diametrically opposite sides of the rod, each front link being associated with a different one of the arms, means pivotally connecting the back ends of the rear links to the shoe, means pivotally connecting the forward ends of the front links to the arms, and means pivotally connecting the back end of each front link to the forward end of its associated back link, and cutter members removably carried on the forward end of the front links, said cutter members being positioned between the bifurcations of the arms for retraction into the arms when the shoe is in its remotest position from the yoke and jutting from the inner faces of the arms between the bifurcations when the shoe is in its closest position to said yoke so that as the shoe is moved forwardly the cutting members shear tines from the sheet metal corner and clinch the tines in the building corner.

References Cited in the file of this patent

UNITED STATES PATENTS

70	2,605,467	Lind	Aug. 5, 1952
	2,756,428	Kellersman	July 31, 1956
	2,859,445	Larrabee	Nov. 11, 1958